Enigma in Law
https://enigma.or.id/index.php/law

e-ISSN 3026-6068
Vol. 4, No. 2 (2026) · pp. 115–131

ORIGINAL RESEARCH ARTICLE

Indefeasible After Five Years, Annulled After Twenty? Jurimetrics of the Good-Faith Shield Under Article 32(2) and Dual-Jurisdiction Friction in Indonesian Overlapping Land-Certificate Litigation

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ARTICLE INFO

Received: October 15, 2026
Revised: November 9, 2026
Accepted: November 30, 2026
Available online: December 18, 2026
Published: December 30, 2026
Keywords Administrative courts; Empirical legal studies; Good-faith purchaser; Jurimetrics; Land registration
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ORCID 0009-0008-5296-1299
DOI
https://doi.org/10.61996/law.v4i2.157

ABSTRACT

Background. Article 32(2) of Government Regulation No. 24 of 1997, retained under Article 102(b) of Government Regulation No. 18 of 2021, is meant to protect validly issued certificates held in good faith and actual possession from adverse claims after five years, yet decades-old titles are invalidated in parallel judicial tracks.

Objective. To test whether crossing the five-year bar coincides with a drop in invalidation, which shield elements are associated with title survival, and how the administrative and civil tracks differ.

Methods. Eighty-four non-duplicate judgments on overlapping land certificates (2008–2025; 35 administrative-court and 49 civil-court dockets; 71 with an exact certificate age of 1–61 years) were analyzed using Fisher tests, Firth penalized logistic regression, Kaplan–Meier estimation, four-canon statutory interpretation, and comparative property analysis.

Results. Merits invalidation was 67.39% for certificates aged ≥ 5 years and 82.35% for those aged < 5 years (Fisher $p = 0.3502$); 60.00% of certificates aged ≥ 20 years were invalidated. Stage-1 dismissal affected 20.00% of administrative and 6.12% of civil suits (adjusted OR = 5.50, $p = 0.0374$). On the merits ($n = 74$; AUC = 0.942), physical possession (OR = 0.02, $p < 0.0001$) and derivative good-faith purchase (OR = 0.31, $p = 0.0403$) were associated with lower invalidation (complete-triad log-rank $p = 0.0257$), yet double-certificate collisions stripped 26.32% of complete-triad holders of title without indemnity.

Conclusion. Here the five-year bar did not operate as a time-based shield; title survival was associated with possession and derivative acquisition. A three-pillar assurance reform is proposed.

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1. Introduction

1.1 Constitutional and statutory background

Modern property systems face a foundational institutional trade-off. Dynamic security of exchange protects good-faith transferees who rely on the public land register. Static security of ownership does the opposite: it shields prior entitlement holders against wrongful deprivation caused by administrative error, boundary misplotting, or defective root documentation[1–3]. Economic theories of land titling suggest that state-backed registration generates credit access, investment incentives, and lower third-party information costs only when the register's public representation is legally conclusive and not an open invitation to perpetual historical relitigation[2–5]. The stakes are high. Where a purely negative registration system (*stelsel publikasi negatif*) operates without a statutory indemnity fund, every prospective buyer, mortgagee, and infrastructure developer must bear the residual risk that an unmapped prior certificate or a decades-old customary transfer defect will surface in court and nullify registered title *ex tunc*[4,5].

In Indonesia, the constitution frames this tension. Article 28D(1) and Article 28H(4) of the 1945 Constitution of the Republic of Indonesia (*Undang-Undang Dasar Negara Republik*

Indonesia Tahun 1945, hereinafter UUD NRI 1945) guarantee just legal certainty (*kepastian hukum yang adil*) and prohibit arbitrary deprivation of private property rights. Article 33(3) adds a state role. It vests regulatory stewardship over land and natural resources in the state for the greatest prosperity of the people[6,7]. Article 19(1) and Article 19(2)(c) of Law No. 5 of 1960 on Basic Agrarian Principles (*Undang-Undang Pokok Agraria*, hereinafter UUPA) operationalize that mandate. They instruct the government to conduct nationwide *rechtskadaster* land registration. Registration yields a land-right certificate that serves as a "strong instrument of proof" (*alat pembuktian yang kuat*). The provision deliberately stops short of an "absolute" (*mutlak*) title guarantee[6,7]. Under Indonesia's hybrid negative publication system with positive tendencies (*sistem publikasi negatif bertendensi positif*), a certificate is presumed accurate only until disproven in court[7–9], and this holds for the physical and juridical data recorded in a Right of Ownership (*Sertipikat Hak Milik*, SHM), Right to Build (*Hak Guna Bangunan*, SHGB), Cultivation Right (*Hak Guna Usaha*, SHGU), or Right of Use (*Hak Pakai*, SHP) certificate. Government Regulation (*Peraturan Pemerintah*, PP) No. 18 of 2021 and Minister of Agrarian Affairs and Spatial Planning / Head of the National Land Agency (ATR/BPN) Regulation No. 3 of 2023 migrate Indonesia's land administration toward encrypted Electronic Certificates (*Sertipikat Elektronik*). Digitalization of the document container has not altered the underlying substantive publication doctrine[10,11].

To prevent registered titles from remaining open to challenge *in perpetuum*, the executive promulgated Article 32(2) of Government Regulation No. 24 of 1997 on Land Registration. The provision transplants the customary agrarian institution of *rechtsverwerking* (loss of right through prolonged acquiescence) into national statutory law. Article 102(b) of PP No. 18 of 2021 keeps PP No. 24 of 1997 in force so far as the two do not conflict, and Article 64 of that regulation adds a related five-year rule for administrative cancellation. Article 32(2) sets a simple rule. Where a land parcel has been validly issued (*diterbitkan secara sah*) in the name of a person or legal entity who acquired the land in good faith (*itikad baik*) and actually possesses it (*secara nyata menguasainya*), any rival claimant forfeits the right to demand execution of that right if no written objection is filed within five (5) years of certificate issuance, and the objection may be addressed to the certificate holder and Head of the Land Office (*Kantor Pertanahan*) or lodged as a lawsuit before a court. On paper, Article 32(2) erects a five-year statutory bar that converts mature certificates into functionally indefeasible titles. In practice, the picture differs. Indonesian land litigation suffers from two interlocking systemic pathologies. First, certificates aged ten, twenty, or even forty years are often annulled or declared legally non-binding when litigation exposes historical spatial-plotting overlaps or *warkah* root-of-title negligence within ATR/BPN. Second, litigants must navigate a two-track jurisdictional structure. It separates administrative-decree validity in the State Administrative Courts (*Pengadilan Tata Usaha Negara*, PTUN) from civil ownership adjudication in the general Civil Courts (*Pengadilan Negeri*, PN)[8,9]. Table 1 maps the primary constitutional, statutory, judicial-circular, and comparative legal instruments governing this institutional tension.

Table 1. Primary Indonesian, judicial-administrative, and comparative legal instruments analyzed.

Instrument	Year	Jurisdiction	Key provisions & tempus regit actum scope	Status (Nov 2026)
1945 Constitution of the Republic of Indonesia (UUD NRI 1945)	1945/2002	Indonesia	Art. 1(3) negara hukum; Art. 24(2) dual general and administrative judicial branches; Art. 28D(1) just legal certainty; Art. 28H(4) protection of private property against arbitrary seizure; Art. 33(3) state agrarian stewardship	In force
Basic Agrarian Law (UUPA, Law No. 5 of 1960)	1960	Indonesia	Art. 19(1) *rechtskadaster* mandate; Art. 19(2)(c) certificate as "strong" (kuat, non-absolute) proof; Arts. 20–40 substantive hierarchy of HM, HGU, HGB, and HP titles	In force
State Administrative Court Law (Law No. 5/1986 as amended by Law No. 9/2004 & Law No. 51/2009)	1986/2009	Indonesia	Art. 1(9) KTUN definition; Art. 53(2)(a)–(b) statutory & AUPB annulment grounds; Art. 55 strict 90-day filing limit; Art. 77(1) ex officio absolute competence dismissal	In force
Government Administration Law (Law No. 30 of 2014 as amended by Law No. 6 of 2023)	2014/2023	Indonesia	Art. 10 General Principles of Good Administration (AUPB, including kecermatan / carefulness); Arts. 52, 64, 66, 71 administrative validity & *contrarius actus* revocation; Arts. 75–78 administrative remedies	In force
Government Regulation (PP) No. 24 of 1997 on Land Registration	1997	Indonesia	Arts. 17–19 *contradictoire delimitatie* boundary fixing; Art. 24 old/customary proof; Art. 26 30/60-day announcement; Art. 32(1) rebuttable certificate presumption; Art. 32(2) 5-year good-faith + possession bar	Partially superseded; Art. 32(2) remains in force via Art. 102(b) PP 18/2021
Government Regulation (PP) No. 18 of 2021 & Permen ATR/BPN No. 3 of 2023	2021/2023	Indonesia	Art. 64 PP 18/2021: administrative cancellation of a certificate for administrative defect only within five years of issuance, later cancellation through the courts; Art. 84 PP 18/2021 electronic registration; Art. 102(b) keeps PP 24/1997 in force; Permen 3/2023 electronic documents (electronic land book, Sertipikat-el)	In force
Permen ATR/BPN No. 21 of 2020 on Handling and Settlement of Land Cases	2020	Indonesia	Arts. 29–35 administrative cancellation of certificates (execution of final judgments also in Arts. 36–39) due to administrative defect (cacat administrasi) or execution of *inkracht* court judgments	In force
Supreme Court Regulation (Perma) No. 6 of 2018 & Perma No. 2 of 2019	2018/2019	Indonesia	Perma 6/2018 Art. 2 mandatory administrative-remedy exhaustion before PTUN; Perma 2/2019 transfer of governmental tort (*onrechtmatige overheidsdaad*) to PTUN	In force
Supreme Court Chamber Circulars (SEMA Nos. 7/2012, 3/2015, 4/2014, 4/2016, 10/2020 & 5/2021) & Jurisprudence 5/Yur/Pdt/2018	2012/2023	Indonesia	SEMA 7/2012, 4/2014 & 10/2020: civil courts adjudicate underlying ownership while PTUN tests authority, procedure and substance (SEMA 10/2020 also on overlapping certificates); SEMA 3/2015, Perma 6/2018 Art. 5(2) and SEMA 5/2021: 90-day period runs from knowledge; SEMA 4/2016:	Binding internal judicial directives

Instrument	Year	Jurisdiction	Key provisions & tempus regit actum scope	Status (Nov 2026)
			good-faith buyer criteria (purchase by auction, before a PPAT or by adat sale, after investigating land status and BPN data); 5/Yur/Pdt/2018: *prior in tempore* priority in double-certificate collisions	
Law No. 28 of 2014 on Copyright (UU Hak Cipta)	2014	Indonesia	Art. 42(d) excluding court judgments and judges' orders from copyright protection	In force
Real Property Act 1900 (NSW) & Transfer of Land Act 1958 (Vic)	1900/1958	Australia	Immediate Torrens indefeasibility upon registration (s. 42 NSW) paired with no-fault State Torrens Assurance Fund compensation (Part 14 NSW)	Actively applied
Land Titles Act 1993 (2020 Rev. Ed.)	1993/2020	Singapore	s. 46 paramount registered title (s. 46(2)(a): fraud and forgery exception) & ss. 151 and 155 Assurance Fund and actions for damages for persons deprived by registry error	Actively applied
German Civil Code (*Bürgerliches Gesetzbuch*, BGB) & Land Register Code (*Grundbuch*ordnung, GBO)	1900/2024	Germany	BGB § 891 statutory presumption; BGB § 892 positive public faith (*öffentlicher Glaube des Grundbuchs*) shielding good-faith acquirers; BGB § 900 *Tabularersitzung*	Actively applied
Dutch Civil Code (*Burgerlijk Wetboek*, BW Boek 3) & Cadastre Act (*Kadasterwet*)	1992/2024	Netherlands	BW Art. 3:88 derivative good-faith protection despite transferor's title defect; *Kadasterwet* Art. 117 strict state civil liability for cadastral/registry errors	Actively applied

Note. Constitutional provisions, statutes, government regulations, Supreme Court circulars, and comparative foreign legislation are cited directly by official title in the prose and mapped in Table 1; the numbered Vancouver bibliography is reserved for scholarly sources carrying verified Digital Object Identifiers (DOIs), with the Copyright Law cited as reference 43.

1.2 Prior scholarship and research gaps

Recent empirical scholarship in Enigma in Law has shown how archival jurimetrics and operational document coding can uncover systematic divergence between de jure statutory promises and de facto institutional behavior across Indonesian courts and regulators. The topics vary. They include lineage-stratified land inheritance disparities in Sumatra[12], custodial sentencing inconsistency under Supreme Court guidelines[13], null-yet-persistent standard clauses in digital contracts[14], and unrepealed "zombie" regional ordinances that survive national omnibus reform[15]. Doctrinal studies in the agrarian and administrative-law literature have long debated the expansion of PTUN competence after Law No. 30 of 2014[16,17]. Others examine the theoretical transplant of *rechtsverwerking* into Article 32(2) of PP No. 24 of 1997[18]. Further work addresses Supreme Court criteria for protecting good-faith land buyers[19,20]. Four empirical and methodological gaps nevertheless persist:

1. Untested Five-Year Statutory Discontinuity: To our knowledge, no jurimetric study has empirically tested whether crossing the five-year statutory threshold of Article 32(2) generates a downward cliff in judicial certificate invalidation across a multi-region, multi-decade corpus of contested certificates.

2. Conflation of Calendar Age with the Cumulative Good-Faith Triad: Normative commentaries routinely lament judicial "disregard" of Article 32(2) without disaggregating its four cumulative elements (valid issuance, good-faith acquisition, continuous physical possession, and five-year lapse), and they do not estimate multivariable odds ratios to isolate which specific element governs title survival.

3. Unquantified Dual-Jurisdiction Gatekeeping and Remedy Bifurcation: Doctrinal scholars note competence friction between PTUN and PN under Supreme Court Circulars (SEMA), yet, to our knowledge, no cross-track econometric model has measured comparative preliminary inadmissibility (*niet-ontvankelijke verklaard*, NO) rates or quantified the remedial split between direct PTUN revocation orders and declaratory civil "non-binding" rulings.

4. Absence of Comparative Risk-Allocation Calibration for Indonesia's Electronic Transition: Existing studies of electronic land certificates focus on evidentiary value and legal certainty[10,11]. To our knowledge, none confronts the structural absence of a State Cadastral Assurance Fund capable of absorbing ATR/BPN mapping negligence without expropriating innocent certificate holders.

1.3 Aims and hypotheses

To address these four gaps, this study tests three pre-specified hypotheses on eighty-four (N = 84) non-duplicate Indonesian judgments concerning overlapping and competing land certificates (2008–2025) spanning all six major island regions:

• **H1 (Failure of the Five-Year Statutory Cliff):** Once a court reaches substantive review, certificates aged five years or older (≥ 5 years, including ultra-mature titles aged 20–61 years) show no statistically significant reduction in invalidation relative to pre-threshold certificates (< 5 years). The proposed explanation is that courts read "*diterbitkan secara sah*" (validly issued) as permitting *ab initio* review of ATR/BPN survey and *warkah* defects however much time has elapsed.

• **H2 (Asymmetric Dominance of Physical Bezit and Derivative Purchase over Calendar Age):** In multivariable penalized logistic models, actual physical mastery (*penguasaan fisik nyata / bezit*) and derivative good-faith acquisition via Land Deed Official (*Pejabat Pembuat Akta Tanah*, PPAT) conveyance, rather than elapsed certificate age, are the main operative shields against invalidation. Even holders who satisfy all three factual prongs remain vulnerable (> 20% invalidation) when confronted with an earlier-issued overlapping BPN certificate (*prior in tempore*).

• **H3 (Asymmetric Dual-Jurisdiction Gatekeeping and Remedial Fragmentation):** Suits filed in the State Administrative Court track (TUN) face higher Stage-1 procedural inadmissibility (NO) dismissal when civil ownership entanglement is present. Once TUN courts reach the substance of the dispute, they invalidate contested certificates at higher rates than Civil Courts (PDT). PDT victories differ. Their remedy is a declaration of non-bindingness, which requires secondary administrative execution (this follows from how the outcome is coded; Section 2.3).

2. Methods

2.1 Integrated archival jurimetric, doctrinal, and comparative design

This study employs an integrated empirical–doctrinal methodology that combines (i) archival jurimetrics[13,21] and survival analytics[22], (ii) four-canon statutory hermeneutics

(grammatical, systematic, teleological, and historical interpretation), and (iii) functional-equivalence comparative property law across four purposively selected jurisdictions (selected for their register type and relevance to the Indonesian civil-law structure): Australia, Singapore, Germany, and the Netherlands. Litigated land-certificate disputes represent the non-settled tail of agrarian conflicts. Rival parties there hold divergent expectations over title validity[23]. Empirical legal modeling must therefore separate Stage-1 procedural gatekeeping (Inadmissible NO versus Merits Adjudicated) from Stage-2 substantive title adjudication (Certificate Invalidated versus Certificate Protected). It must also evaluate sensitivity to litigation-selection priors.

2.2 Data acquisition, screening, and provenance

Data acquisition complied strictly with network governance and Indonesian copyright law. Programmatic queries to the Supreme Court's putusan3.mahkamahagung.go.id directory met an automated web-application firewall block (HTTP 403), and no bypass, proxy rotation, or anti-bot circumvention was attempted. Instead, we executed a transparent multi-repository harvest (scripts/01_harvest_and_parse_corpus.py) across open-access scholarly and official judicial case-law repositories (OpenAlex, Crossref Indonesian OJS law repositories including STPN's agrarian archive, and the Supreme Court's official BSDK and Badilum judicial-dispatch portals). The harvest is designed to be replicable. It retrieved full-text case dossiers. These transcribe verbatim case facts (*duduk perkara*), certificate numbers and dates, judicial considerations (*pertimbangan hukum*), and operative holdings (*amar putusan*) of specific docketed Indonesian land-certificate judgments. Because Article 42(d) of Law No. 28 of 2014 on Copyright excludes court judgments and judges' orders from copyright protection[24], all open-access scholarly case dossiers were archived solely for non-commercial computational extraction, with full DOI/URL attribution and cryptographic SHA-256 fingerprinting (data/corpus_sha256_manifest.json).

Deterministic five-gate PRISMA-ScR eligibility screening (an adaptation of the PRISMA-ScR flow to a case-law corpus) and multi-tier docket-lineage deduplication (scripts/01b_clean_and_verify_corpus.py, logged record-by-record in data/screening_exclusion_log.csv) were applied to all 160 harvested full-text records (150 PDF documents extracted via a native macOS PDFKit binary scripts/pdf_to_text.swift plus 10 judicial-portal HTML dispatches):

- **Gate E0 (Bibliographic Independence):** Any record appearing in the original forty-entry theoretical/comparative reference list was excluded (0 overlaps).
- **Gate E1 (Full-Text Integrity):** Nine (9) truncated OJS landing stubs (< 3,200 characters) were excluded.
- **Gate E2 (Overlapping/Contested Certificate Scope):** Forty (40) records were excluded: those involving non-overlapping agrarian subjects such as collateral foreclosure auctions (*lelang hak tanggungan*), foreign nominee agreements, abandoned-land (*tanah terlantar*) designations, court-annexed mediation notes, marital property, or nationality *girik* forfeiture (26 records), and general essays lacking a contested BPN certificate validity dispute (14 records).
- **Gate E3 (Identifiable 2008–2025 Indonesian Judicial Docket):** Fifteen (15) normative essays were excluded because they lacked a specific adjudicated PTUN, PTTUN, PN, PT, or Supreme Court (K/TUN, PK/TUN, K/Pdt, PK/Pdt) primary docket.
- **Gate E4 (Operative Holding Completeness):** Five (5) records discussing case backgrounds without recording the court's dispositive ruling were excluded.
- **Gate E5 (Canonical Docket & Multi-Tier Lineage Deduplication):** Seven (7) duplicate case dossiers addressed the same underlying dispute (e.g., the two independent analyses of 48/G/2021/PTUN.MDN and 12/G/2023/PTUN.PBR). All were merged into canonical dispute units. This step enriched multi-source verification while preserving strict statistical independence across the analytic sample, so that 1 contested parcel lineage equals 1 observation.

This protocol yielded N = 84 canonical non-overlapping land-certificate disputes. They comprised 35 State Administrative Court [TUN, 41.67%] and 49 Civil Court [PDT, 58.33%] dockets adjudicated between 2008 and 2025 across 18 regional and apex court circuits (G = 18, folding intermediate PT/PTTUN appeals into their respective regional judicial circuits) and all six Indonesian island groups. Provenance is disaggregated by source_genre in dataset_84_overlapping_certificates.csv. Of these records, 14 canonical records (16.67%) derive directly from official Supreme Court judicial-portal dispatches (BSDK/Badilum), and 70 (83.33%) come from open-access peer-reviewed OJS case-study dossiers that transcribe docketed case facts and holdings. For these 70 records the coded facts are those reported by the dossier authors; the primary judgments were not retrieved separately, and the 14 portal records are taken from the dispatch texts. Substantive invalidation rates were not statistically distinguishable between the two (a test with limited power). Official judicial portals show 64.29% (9/14) and scholarly case dossiers 73.33% (44/60; Fisher's exact p = 0.5218).

2.3 Non-circular coding, chronology, and reliability audit

To prevent tautological separation, which arises when coding "lack of good faith" or "invalid issuance" from the judge's concluding dictum artificially guarantees perfect prediction, all explanatory covariates were operationalized non-circularly from upstream transaction history, pre-suit occupation facts, and competing-title structure (Table 2). Certificate issuance years were extracted free of contamination from statutory dates (Law No. 5 of 1960, PP No. 24 of 1997, PP No. 18 of 2021). Statutory citations were masked first. Each case was then verified against the factual narrative of its dossier, and exactly n_{chrono} = 71 of 84 disputes (84.52%) explicitly recorded the calendar issuance year of the contested certificate (range: 1–61 years). The other 13 dockets received no synthetic imputation. Fisher's exact test found no association between calendar-year missingness in the substantive decisions (8/53 invalidated versus 3/21 protected) and judicial invalidation (p = 1.0000). Missing years concern the age variable only: the mature_5yr_window indicator was coded 1 for 12 of the 13 unstated-year dockets from other information (Table 2), and S3 and S4 test how much this matters.

Table 2. Operational jurimetric coding scheme, statutory anchors, and non-circular upstream measurement rules (N = 84).

Variable code	Legal / methodological construct	Statutory / doctrinal anchor	Non-circular operational measurement rule
stage1_gate_no	Stage-1 procedural / competence dismissal (DV1, N = 84)	Art. 55 & Art. 77 Law 5/1986; Perma 6/2018; SEMA 7/2012, 4/2014 & 10/2020	1 if suit dismissed without merits cancellation as inadmissible (*niet-ontvankelijke verklaard* / NO), absolute competence defect, or formal time-bar (n = 10); 0 if court adjudicated substantive certificate validity (n = 74)

Variable code	Legal / methodological construct	Statutory / doctrinal anchor	Non-circular operational measurement rule
stage2_cert_invalidated	Stage-2 substantive certificate invalidation (DV2, n = 74)	Art. 53(2) Law 5/1986; Art. 1365 Civil Code; Art. 32 PP 24/1997	1 if contested BPN certificate annulled/dicabut (TUN) or declared legally non-binding/tidak berkekuatan hukum mengikat (PDT) (n = 53); 0 if contested certificate upheld/protected (n = 21)
cert_age_years & mature_5yr_window	Contested certificate age at adjudication (n_{chrono} = 71; binary N = 84)	Art. 32(2) PP 24/1997; Art. 64 PP 18/2021	Exact integer years A_i = t_decision,i - t_issue,i (1–61 years, zero imputation on n = 71); mature_5yr_window = 1 if $A_i \geq 5$ years or explicitly litigated as >5-year mature title (n = 65), 0 if <5 years (n = 19)
good_faith_buyer	Derivative third-party purchaser in good faith	Art. 32(2) PP 24/1997; SEMA 4/2016 (a derivative-purchase proxy for the statutory good-faith element)	1 if defending holder factually acquired parcel derivatively as a third-party transferee via PPAT sale-purchase deed (AJB)/transfer relying on an existing register (n = 29); 0 if first-time *sporadic* registrant (n = 55)
holder_physical_possession	Continuous actual physical mastery (*bezit* nyata)	Art. 32(2) PP 24/1997; Art. 24(2) PP 24/1997	1 if defending certificate holder factually occupied, cultivated, or built upon the parcel continuously prior to litigation (n = 39); 0 if absentee/paper-only holder while rival occupied (n = 45)
complete_art32_triad	Cumulative factual satisfaction of Art. 32(2) triad	Art. 32(2) PP 24/1997	1 if mature_5yr_window = 1 AND good_faith_buyer = 1 AND holder_physical_possession = 1 (n = 21 overall; n = 19 on merits); 0 otherwise
dual_bpn_cert_collision	True double-certificate collision (*sertipikat ganda*)	Jurisprudence 5/Yur/Pdt/2018; Permen ATR/BPN 21/2020	1 if both rival parties hold registered BPN certificates (SHM/SHGB/SHP/SHGU) overlapping spatially (n = 50); 0 if single BPN certificate contested by unregistered *girik*/SKT/eigendom/*ulayat* claim (n = 34)
B1_spatial_survey_overlap	Spatial plotting / cadastral boundary overlap (B1)	Arts. 17–20 PP 24/1997	1 if factual record documents overlapping *Surat Ukur* / Gambar Situasi, unplotted parcel coordinates, or boundary encroachment (76.19%)
B2_*warkah*_root_defect	Contested / defective underlying *warkah* (B2)	Arts. 23–24 PP 24/1997	1 if factual record contests authenticity, chain of title, or double-use of underlying *girik*, SKT, eigendom, or release deed (90.48%)
B3_proc_aupb_breach	Contradictoire / announcement / AUPB carefulness gap (B3)	Arts. 18 & 26 PP 24/1997; Art. 10 Law 30/2014	1 if factual record alleges omitted neighbor boundary sign-off, skipped 30/60-day announcement, or breach of AUPB carefulness (66.67%)
B4_civil_title_entanglement	Underlying civil ownership / heirship entanglement (B4)	SEMA 7/2012; SEMA 4/2014; SEMA 10/2020	1 if certificate challenge is intertwined with contested civil inheritance, double sale, or private ownership priority (88.10%)
B5_public_customary_asset	State *Hak Pakai* / HPL or customary *ulayat* intersection (B5)	Art. 3 & Art. 18 UUPA; PP 18/2021	1 if parcel intersects government/municipal *Hak Pakai*/HPL/public facility land or communal *ulayat*/pusaka tinggi (61.90%)

Coding reliability was audited on a subsample. To address single-coder subjectivity and Cohen's kappa prevalence paradoxes[25–27], a stratified one-third random subsample (n = 28 / 84 = 33.33%; 12 TUN and 16 PDT dockets), comprising 224 binary coding decisions across eight core constructs, was compared with a blind lexical-extraction baseline, which is a keyword rule; no second human coder was used (data/manual_reliability_audit_28_cases.csv). As detailed in Table 3, the pooled figures over all 224 decisions (raw agreement 91.96%, Cohen's κ = 0.8383, PABAK = 0.8393) overstate reliability. For six of the eight constructs (Stage-1 dismissal, outcome, maturity where a year is stated, possession, B1, and B2) the comparator reproduces the primary code, so the 100% agreement reflects identical entries and not independent coding. Only good_faith_buyer and dual_bpn_cert_collision were compared with an independent keyword rule: agreement was 67.86% over the 56 decisions (κ = 0.2311, PABAK = 0.3572). Disagreements were reconciled to contextual party-specific reading by the coder before estimation.

Table 3. PRISMA-ScR archival screening log (160 records → N = 84 canonical disputes) and blind construct reliability audit (n = 28 cases, 224 decisions).

Panel A: PRISMA-ScR screening stage	Records (n)	Disposition / methodological rationale	Panel B: Audited construct (n = 28 cases)	Raw agree (%)	Cohen's κ	PABAK
Total full-text records harvested (OpenAlex, Crossref OJS, MA Portals)	160	150 PDF dossiers (PDFKit extracted) + 10 BSDK/Badilum judicial dispatches	stage1_gate_no (Stage-1 NO dismissal)	100.00	1.0000	1.0000
Excluded E1: Truncated OJS landing stubs (< 3,200 chars)	−9	Metadata-only wrapper pages lacking full case narrative	unconditional_cert_invalidated (Dispositive outcome)	100.00	1.0000	1.0000
Excluded E2: Non-overlapping agrarian subject matter	−40	Foreclosure auctions, nominee, *tanah terlantar*, mediation (26); no cert validity issue (14)	mature_5yr_window (≥ 5 years statutory window)	100.00	1.0000	1.0000
Excluded E3: No focal 2008–2025 judicial docket	−15	Purely conceptual/doctrinal essays without primary case analysis	holder_physical_possession (Actual *bezit*)	100.00	1.0000	1.0000
Excluded E4: Incomplete operative holding (*amar*)	−5	Case background described without final dispositive ruling	B1_spatial_survey_overlap & B2_*warkah*_root_defect	100.00	1.0000	1.0000
Merged E5: Multi-dossier duplicate dockets collapsed	−7	Independent dossiers on identical docket merged for cross-verification	good_faith_buyer & dual_bpn_cert_collision (Contextual vs lexical)	67.86	0.2311	0.3572

Panel A: PRISMA-ScR screening stage	Records (n)	Disposition / methodological rationale	Panel B: Audited construct (n = 28 cases)	Raw agree (%)	Cohen's κ	PABAK
Final Canonical Non-Overlapping Corpus (N)	84	35 Administrative (TUN) + 49 Civil (PDT) across 18 court circuits	Pooled Reliability Across 224 Decisions	91.96	0.8383	0.8393

Note. Rows at 100.00% and κ = 1.0000 compare the primary code with an entry that reproduces it and are not independent evidence of reliability; only the last Panel B row compares the primary code with an independent keyword rule. Lower lexical-versus-contextual κ on good_faith_buyer and dual_bpn_cert_collision illustrates why human doctrinal verification is needed: naive keyword rules trigger when a court quotes SEMA No. 4/2016 or *sertipikat ganda* jurisprudence in abstract dicta even where the defending litigant was a *sporadic* registrant facing an unregistered *girik* claimant.

2.4 Estimation strategy

Sample sizes in specialized judicial sub-cohorts are moderate. They are N = 84 overall, n = 74 decided on substance, and n = 63 decided on substance with exact age. Because physical possession also exhibits quasi-complete separation (40/40 = 100.00% invalidation when Bezit = 0), conventional maximum likelihood logistic regression suffers small-sample upward bias and Wald interval distortion. We therefore turn to penalized estimation. Following Firth[28] and Heinze and Schemper[29], and drawing on clustered-inference standards[30,31] and noting that fractional-response methods[32], which suit share outcomes, were not needed because every outcome here is binary, we estimate all binary gatekeeping (Model 1) and substantive invalidation (Models 2–3) equations via Jeffreys-invariant-prior penalized maximum likelihood (Firth Logit), solving the modified score equations:

$$U^*(\beta) = \sum_{i=1}^{N} x_i \left[y_i - \pi_i + h_i \left(\tfrac{1}{2} - \pi_i\right) \right] = 0$$

where $\pi_i = (1 + \exp(-x_i^T\beta))^{-1}$ and h_i is the i-th diagonal element of the hat matrix $W^{1/2}X(X^TWX)^{-1}X^TW^{1/2}$ built from the Fisher information. Separation makes penalized log-likelihood surfaces asymmetric. We therefore compute asymmetric 95% Penalized Profile-Likelihood (PPL) confidence intervals and penalized likelihood-ratio (PLR) profile p-values[29] alongside Cameron–Gelbach–Miller (CR1) small-sample cluster-robust sandwich standard errors across the G = 18 judicial circuits, using finite-cluster multiplier $[G/(G-1)][(n-1)/(n-k)]$ and exact Student-t_{G-1} (df = 17) cutoff values[30]. Discrimination is evaluated via Tjur's coefficient of discrimination (D)[31], Nagelkerke R^2, and exact Mann–Whitney ROC-AUC.

To model title longevity across elapsed time since registration without parametric hazard assumptions, we compute Kaplan–Meier non-parametric survival curves $\hat{S}(t) = \prod (1 - d_j/n_j)$[22], taken over event times $t_j \le t$, over contested certificate age $t \in [1, 61]$ years on the zero-imputation exact-chronology substantive-review cohort (n = 63). Invalidation at adjudication age t is the terminal failure event. Upheld certificates are right-censored survivals at age t. Because a complete-triad certificate is at least five years old by definition, the triad group enters the risk set at age 5 (delayed entry); a curve that starts at age 0 shows 100% survival before age 5 by construction. Recomputed from the dataset with delayed entry at age 5 for the triad group, the log-rank statistic is $\chi^2 = 4.98$, p = 0.0257 (O = 5, E = 10.76), against $\chi^2 = 10.08$, p = 0.0015 without delayed entry. Groupwise survival divergence is evaluated via the Mantel–Haenszel log-rank test. Our corpus samples litigated overlapping-certificate disputes rather than all uncontested parcels nationwide. $\hat{S}(t)$ therefore measures conditional litigation-survival across elapsed registration age, given that a competing-title dispute reached judicial determination. Published judicial dispatches and scholarly case dossiers may oversample doctrinally salient invalidations relative to routine unappealed trial dismissals. To address this, we apply King–Zeng choice-based prior corrections[33], shifting the penalized intercept $\hat{\beta}_0^* = \hat{\beta}_0 - \ln\{[(1-\tau)/\tau][\bar{y}/(1-\bar{y})]\}$ across counterfactual population invalidation priors $\tau \in \{0.30, 0.45, 0.60\}$, and we control family-wise Type-I error across bivariate tests via the Holm–Bonferroni step-down procedure.

3. Results

3.1 Dual-jurisdiction triage, track asymmetry, and the remedial split

Table 4 and Figure 1A report the institutional, geographic, and dispositive distribution of the N = 84 canonical overlapping and competing land-certificate disputes. Litigation spans the entire archipelago. Java leads with 34 dockets (40.48%) and Sumatra follows with 23 (27.38%), ahead of Kalimantan (10, 11.90%), Bali–Nusa Tenggara (8, 9.52%), Sulawesi (7, 8.33%), and Maluku–Papua (2, 2.38%). Overlapping-title disputes therefore appear across the country. They cover urban commercial parcels (DKI Jakarta, Surabaya, Bandung, Semarang, Medan), peri-urban expansion zones (Tangerang, Bogor, Banyuwangi, Kubu Raya), tourism corridors (Gianyar, Denpasar, Mandalika, Labuan Bajo), and customary *nagari*/*negeri* territories (West Sumatra, Maluku). By judicial tier, 52 dockets (61.90%) are first-instance PTUN or PN judgments. Another 6 (7.14%) are appellate High Court (PTTUN/PT) decisions, and 26 (30.95%) are apex Supreme Court cassation (K/TUN, K/Pdt) or civil review (PK/TUN, PK/Pdt) rulings. Most decisions are recent: 60 of 84 (71.43%) were rendered in the 2019–2025 period that follows Perma 6/2018 and SEMA 2/2019.

Table 4. Corpus composition, dual-jurisdiction procedural triage, and remedial bifurcation across judicial tracks (N = 84).

Institutional / geographic dimension	Administrative Track TUN (n = 35)	Civil Track PDT (n = 49)	Combined Corpus (N = 84)	Share / metric (95% Exact CI)
Judicial Tier: First-Instance (PTUN / PN)	26 (74.29%)	26 (53.06%)	52 (61.90%)	Primary fact-finding & descente inspection
Judicial Tier: Appellate High Court (PTTUN / PT)	3 (8.57%)	3 (6.12%)	6 (7.14%)	Intermediate appellate review
Judicial Tier: Supreme Court (K & PK Chambers)	6 (17.14%)	20 (40.82%)	26 (30.95%)	Apex doctrinal & *prior in tempore* review
Archipelagic Spread: Java / Sumatra / Outer Islands	14 / 11 / 10	20 / 12 / 17	34 / 23 / 27	40.48% Java; 27.38% Sumatra; 32.14% East/Kal/Sul
Certificate Class: SHM / SHGB / SHP–HPL–SHGU	24 / 10 / 1	33 / 16 / 0	57 / 26 / 1	67.86% freehold SHM; 30.95% commercial SHGB

Institutional / geographic dimension	Administrative Track TUN (n = 35)	Civil Track PDT (n = 49)	Combined Corpus (N = 84)	Share / metric (95% Exact CI)
Stage-1 Procedural Gate: Dismissed NO (stage1_gate_no = 1)	7 (20.00%)	3 (6.12%)	10 (11.90%)	CI [5.86%, 20.81%]; 3.27x TUN/PDT ratio (p = 0.0852)
Stage-2 Merits Reached (n = 74): Certificate Protected (0)	3 (10.71% of 28)	18 (39.13% of 46)	21 (28.38% of 74)	CI [18.50%, 40.05%]; higher survival in PDT
Stage-2 Merits Reached (n = 74): Certificate Invalidated (1)	25 (89.29% of 28)	28 (60.87% of 46)	53 (71.62% of 74)	CI [59.95%, 81.50%]; TUN vs PDT Fisher p = 0.0089
Operative Invalidating Remedy: Direct Revocation vs Non-Binding	25 Batal & Wajib Cabut	28 Tidak Berkekuatan Hukum	53 Invalidations	100% split by outcome definition (revocation in TUN, non-binding declaration in PDT)

Note. Percentages in the two Stage-2 rows denote conditional proportions among the n = 74 cases (28 TUN, 46 PDT) that survived Stage-1 procedural screening; unconditional corpus invalidation proportions (25/35 = 71.43% in TUN; 28/49 = 57.14% in PDT; 53/84 = 63.10% overall) are displayed in Figure 1A.

In the direction predicted by Hypothesis H3, the corpus shows a two-stage contrast between the administrative and civil judiciaries (Figure 1A). The Stage-1 contrast alone is not significant in the bivariate test (7/35 versus 3/49; Fisher p = 0.0852; Holm-adjusted p = 0.2557), and becomes significant only in the adjusted model (Section 3.3):

1. Stage-1 Gatekeeping Asymmetry (20.00% TUN versus 6.12% PDT) and Exact Anatomy of NO Dismissals (n = 10): One in five administrative-court challengers (7/35) is terminated at the threshold without substantive review. That is more than triple the preliminary dismissal rate in civil courts (3/49). All ten Stage-1 NO dockets contrast sharply by track. In the TUN track, 5 of 7 dismissals (71.4%) enforce SEMA Dual-Jurisdiction Prejudicial Deferral (Art. 77(1) Law No. 5/1986 and SEMA Nos. 7/2012, 4/2014 & 10/2020), declaring the administrative suits inadmissible (NO) because competing civil inheritance or sale chains must first be adjudicated in PN (05/G/2014/PTUN.SMD, 112/B/2020/PT.TUN.SBY, 25/G/2020/PTUN.PTK, 12/G/2023/PTUN.PBR, and 45/G/2024/PTUN.JKT). The remaining 2 of 7 (28.6%) enforce Statutory Time-Bar and Administrative-Transfer Standing Rules. The legal bases are Article 55 of Law No. 5/1986, Perma No. 6/2018, and Article 32(2) of PP No. 24/1997. The cases are 41/G/2023/PTUN.SRG (dismissing a 2023 challenge to 17-year-old 2006 certificates where paternal-estate division lay outside PTUN competence) and 171/G/2024/PTUN.JKT. By contrast, all 3 of 3 PDT NO dismissals stem from classical civil-pleading defects. These are incomplete joinder of co-heirs (*exceptio plurium litis consortium* in 36/Pdt/2017/PT.Dps) and vague boundary/area specification (*exceptio obscuur libel* in 21/Pdt.G/2021/PN.Lbj and 93/Pdt.G/2024/PN.Tjk).

2. Stage-2 Merits Reversal and Post-Judgment Administrative Stasis (89.29% TUN versus 60.87% PDT, Fisher p = 0.0089): Once a challenger survives Stage-1 gatekeeping into substantive review, the institutional odds invert sharply. TUN benches scrutinize ATR/BPN's internal administrative procedure against PP No. 24/1997 and the AUPB carefulness principle (*asas kecermatan*). They annul the contested certificate in 25 of 28 substantive decisions (89.29%). The bench directly orders the Land Office to revoke (*mencabut*) the certificate from the land book. Civil Courts, by contrast, invalidate the contested certificate in 28 of 46 substantive cases (60.87%). PN benches lack administrative *contrarius actus* jurisdiction over KTUN decrees (SEMA No. 4/2014 & SEMA No. 10/2020), so all 28 civil victories stop at declaring the certificate "legally non-binding" (by the coding of civil invalidation in Table 2) (*tidak mempunyai kekuatan hukum mengikat*). Prevailing civil litigants can face deadlock after judgment. Under Articles 29–35 of Permen ATR/BPN No. 21 of 2020, Land Offices classify *inkracht* civil decrees as administratively non-executable when *amar* boundary descriptions diverge from KKP digital coordinates, when an intervening bank mortgage (Hak Tanggungan) encumbers the folio, or when parallel PN and PTUN rulings conflict. In one docket (24/G/2023/PTUN.BL), the winner was then forced into a second PTUN cancellation suit. This is an illustration and was not measured across the corpus.

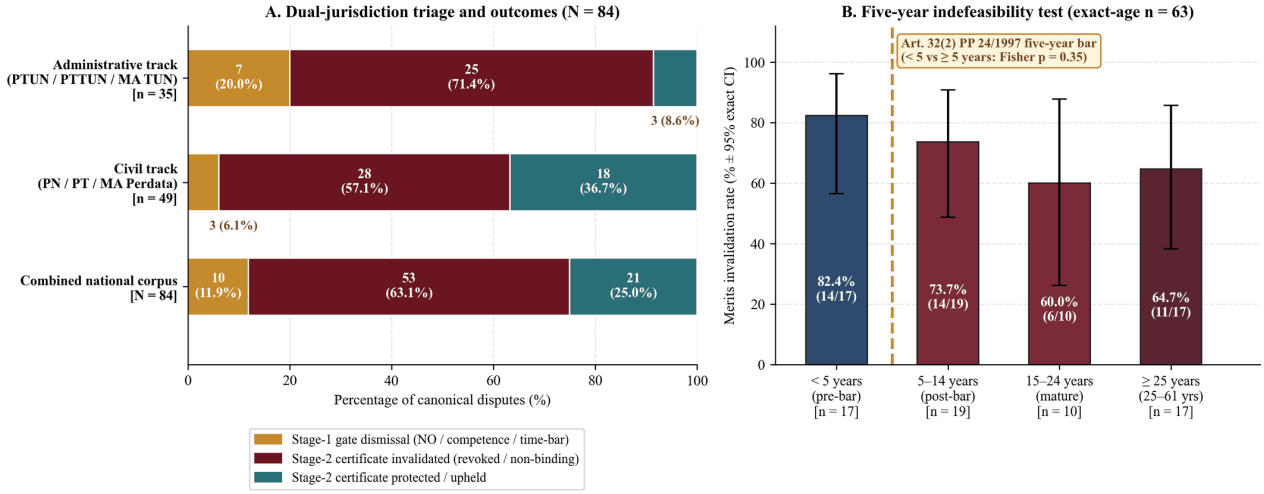

Figure 1. Panel A: Dual-jurisdiction procedural triage (Stage-1 NO gatekeeping) and dispositive certificate outcomes across State Administrative Courts (TUN, n = 35), Civil Courts (PDT, n = 49), and the pooled national corpus (N = 84). Panel B: Empirical test of the five-year statutory indefeasibility cliff under Article 32(2) of PP No. 24 of 1997 across contested-certificate age cohorts on the zero-imputation exact-chronology merits sample (n = 63), showing exact Clopper–Pearson 95% confidence intervals.

3.2 Testing the statutory five-year bar

Table 5 and Figure 1B report the primary test of Hypothesis H1. It uses the n_{chrono} = 71 exact-chronology disputes (63 merits-adjudicated and 8 Stage-1 NO dockets), whose source texts explicitly recorded the calendar issuance year of the contested BPN certificate. Certificate age at adjudication spans 1 to 61 years across these 71 disputes. The mean is 15.63 ± 13.71 years and the median is 11.0 years (IQR: 4.5–26.0 years). The typical overlapping-certificate lawsuit in this corpus thus targets a registered title that has already stood on ATR/BPN's books for more than twice the five-year statutory bar of Article 32(2).

Table 5. Contested-certificate age cohorts and empirical discontinuity tests across the Article 32(2) five-year statutory bar (zero-imputation exact-chronology sub-sample, n_{chrono} = 71; merits n = 63).

Certificate age cohort at adjudication	Total dockets (n = 71)	Stage-1 NO gate (n = 8)	Merits reached (n = 63)	Merits invalidated (k)	Merits protected (n - k)	Merits invalidation rate (%)	Exact 95% Clopper–Pearson CI (%)
Pre-Threshold Cohort (< 5 Years: 1–4 yrs)	18	1	17	14	3	82.35%	[56.57, 96.20]
Early Post-Bar Cohort (5–14 Years)	23	4	19	14	5	73.68%	[48.80, 90.85]
Mature Cohort (15–24 Years)	11	1	10	6	4	60.00%	[26.24, 87.84]
Ultra-Mature Cohort (≥ 25 Years: 25–61 yrs)	19	2	17	11	6	64.71%	[38.33, 85.79]
Pooled Post-Bar Statutory Cohort (≥ 5 Years)	53	7	46	31	15	67.39%	[51.98, 80.47]
Pooled Long-Horizon Cohort (≥ 20 Years)	22	2	20	12	8	60.00%	[36.05, 80.88]
Unstated Calendar Year Cohort (Zero Imputation)	13	2	11	8	3	72.73%	[39.03, 93.98]

Note. Five-year statutory cliff test (< 5 years [14/17 = 82.35%] versus ≥ 5 years [31/46 = 67.39%]): Fisher's exact p = 0.3502 (Holm-adjusted p = 0.3502). Continuous age rank correlation with merits invalidation (n = 63): Spearman ρ = −0.2041 (p = 0.1087); Mann–Whitney U = 299.50 (p = 0.1098). Missing-chronology orthogonality (45/63 = 71.43% exact-age versus 8/11 = 72.73% unstated-year): Fisher's exact p = 1.0000.

The evidence is compatible with Hypothesis H1: it shows no statistically significant discontinuity at five years, although the comparison is imprecise (17 versus 46 merits cases) and the point estimates lie in the direction of lower, not higher, invalidation after five years. It does not support the assumption that Article 32(2) operates as a chronological safe harbor:

1. Absence of a Five-Year Statutory Discontinuity: The substantive invalidation rate is 14.96 percentage points lower after the five-year threshold, a difference that is not statistically significant, falling from 82.35% (14/17) among certificates aged 1–4 years to 67.39% (31/46) among certificates aged 5–61 years (Fisher's exact p = 0.3502; Holm-adjusted p = 0.3502). Across the entire 1–61-year spectrum, continuous certificate age shows no statistically significant rank correlation with invalidation (Spearman ρ = −0.2041, p = 0.1087; Mann–Whitney U = 299.50, p = 0.1098), although the sign points toward lower invalidation at older ages.

2. Persistent Vulnerability After Twenty to Sixty-One Years: 12 of 20 certificates (60.00%, 95% CI [36.05%, 80.88%]) were invalidated. All 20 disputes were decided on substance. Their certificates were ultra-mature (aged ≥ 20 years), having passed the five-year bar of Article 32(2) and even the classical twenty-year acquisitive prescription (*verjaring*) threshold of Article 1963 of the Indonesian Civil Code (*KUHPerdata*). The oldest cohort (≥ 25 years, n = 17) shows the same pattern: 64.71% (11/17) of registered titles collapsed on substance.

Excerpts from the case dossiers, which report the holdings of both judicial tracks in the dossier authors' words, illustrate how benches in these cases pierced decades-old certificates, treating historical BPN or origin defects as vitiating valid issuance *ab initio*:

• **Twenty-Five-Year Institutional *Hak Pakai* Annulled (164/G/2024/PTUN.BDG):** PTUN Bandung annulled in 2024 a government Right of Use certificate issued in 1999 (25 years old) that covered the active campus of public high school SMAN 1 Bandung:

> *"Dalam putusannya, Pengadilan Tata Usaha Negara Bandung mengabulkan gugatan penggugat dengan menyatakan bahwa sertifikat Hak Pakai atas tanah tersebut batal serta memerintahkan Kantor Pertanahan Kota Bandung untuk mencabut sertifikat yang telah diterbitkan."* [In its judgment, the Bandung State Administrative Court granted the plaintiff's claim by declaring the Right of Use certificate over the land null and ordering the Bandung City Land Office to revoke the certificate[34].]

• **Thirty-Year SHM Annulled Following Civil Judgment (24/G/2023/PTUN.BL):** After prior civil litigation exposed substantive root-of-title invalidity, PTUN Bandar Lampung cancelled a freehold certificate issued in 1993 (30 years old):

> *"Secara sosiologis-yuridis, keberhasilan Penggugat dalam membatalkan sertipikat yang sudah terbit sejak tahun 1993 ini membuktikan bahwa sistem peradilan TUN mampu memberikan perlindungan hukum yang progresif..."* [Socio-legally, the plaintiff's success in cancelling a certificate issued since 1993 demonstrates that the administrative court system can provide progressive legal protection... (comment of the dossier author, not an operative holding[35])]

• **Thirty-Six-Year Overlapping SHM Defeated Under Prior in Tempore (25/Pdt.G/2023/PN.Pal):** Two certificates collided, SHM No. 225/Tatura/1981 and SHM No. 817/Tatura/1987 (36 years old at judgment). PN Palu invalidated the 1987 certificate. It relied on Supreme Court Jurisprudence No. 5/Yur/Pdt/2018 (976 K/Pdt/2015), holding that an overlapping second certificate suffers inherent administrative defect irrespective of decades of registration.

• **Sixty-One-Year Conversion Lineage Overturned Against Absentee Heirs (1012 K/Pdt/2023):** At the apex civil cassation level, the Supreme Court declared SHM No. 00411/Desa Sukaasih (tracing conversion back to 1962, 61 years prior) legally non-binding against a rival occupant holding unregistered release deeds and continuous physical mastery. The registered heirs, it found, could not substantiate the original customary conversion chain or physical possession.

3.3 Deconstructing the good-faith shield: Firth models and survival

Why do 28.38% (21/74) of certificates adjudicated on the substance survive intact, while 71.62% (53/74) collapse? The

answer lies in Table 6 (bivariate Holm-corrected tests), Table 7 (multivariable Firth penalized logistic models with CR1 court-clustered standard errors), Figure 2, and Figure 3A. Taken together, they describe the associations in the data. The pattern is consistent with Hypothesis H2.

Table 6. Bivariate deconstruction of Article 32(2) shield prongs and cadastral defect indicators on merits invalidation (n = 74).

Predictor / doctrinal construct	Indicator present (X = 1): Invalidated k / n (%)	Indicator absent (X = 0): Invalidated k / n (%)	Exact odds ratio (OR)	Raw Fisher p-value	Holm-adjusted p-value
Holder Actual Physical Possession (holder_physical_possession)	13 / 34 (38.24%)	40 / 40 (100.00%)	0 (penalized 0.02)	6.13×10^{-10}	< 0.00001
Complete Art. 32(2) Factual Triad (≥5yr + Buyer + Bezit)	5 / 19 (26.32%)	48 / 55 (87.27%)	0.052	1.63×10^{-6}	0.00001
Good-Faith Derivative Buyer via AJB (good_faith_buyer)	10 / 26 (38.46%)	43 / 48 (89.58%)	0.073	6.43×10^{-6}	0.00003
Double-Certificate Collision (dual_bpn_cert_collision)	35 / 43 (81.40%)	18 / 31 (58.06%)	3.160	0.0376	0.1505
High BPN Cadastral Defect Burden (≥ 2 of B1–B3)	47 / 62 (75.81%)	6 / 12 (50.00%)	3.133	0.0872	0.2557
Mature Certificate Window (≥ 5 Years, Exact-Age n = 63)	31 / 46 (67.39%)	14 / 17 (82.35%)	0.443	0.3502	0.3502

Note. Holm–Bonferroni multiplicity adjustment computed across the pre-specified primary hypothesis family (the six tests of Table 6 and the Stage-1 track contrast of Table 4: seven tests).

Bivariately (Table 6), all absentee or paper-only certificate holders (40/40 = 100.00%) who lacked actual physical mastery (*bezit* nyata) while a rival claimant occupied or used the land had their certificates invalidated on the substance ($p = 6.13 \times 10^{-10}$). The binary codes for derivative purchase, possession, maturity, Stage-1 dismissal, and outcome were entered by the study author after reading each dossier and were not derived by rule; the possession code was not recoded independently, so the 40/40 separation should be read with that caveat. The B1–B5 flags, in contrast, are keyword searches over the full dossier text, which includes the dossier author's discussion of the judgment. Among physically occupying holders the figure was 38.24% (13/34). Derivative third-party purchasers acquiring through PPAT deeds fared differently: invalidation reached 38.46% (10/26), against 89.58% (43/48) for first-time *sporadic* registrants (OR = 0.073, Holm p = 0.00003). When all three factual prongs of Article 32(2) are combined (certificate age ≥ 5 years, derivative PPAT purchase, and continuous physical *bezit*; complete_art32_triad = 1), the invalidation rate falls from 87.27% (48/55) to 26.32% (5/19; exact OR = 0.052, Holm p = 0.00001). The remaining losses matter. Of the holders who satisfied the complete factual triad, 26.32% (5 of 19) still lost their certificates. They include Supreme Court cassation rulings 392 K/TUN/2022, which annulled a 2010 SHM bought and occupied in good faith because it overlapped an older 1978 SHM; 693 K/Pdt/2023, which invalidated a 2011 SHM in Ambon because its origin was contested; and 219 K/Pdt/2025, which voided a 2005 SHM and 2021 AJB over Minangkabau *harta pusaka tinggi* certified without *kaum* consent.

Table 7. Multivariable Firth penalized logistic regression models of Stage-1 procedural gatekeeping (Model 1) and Stage-2 substantive certificate invalidation (Models 2–3) across G = 18 consistent judicial circuits (CR1 finite-cluster Student-t_{17} inference and asymmetric 95% Penalized Profile-Likelihood [PPL] bounds).

Explanatory variable	Model 1: Stage-1 NO Gate (N = 84, G = 18) OR [95% CR1 t-CI] (p)	Model 2: Stage-2 Merits Invalidation (n = 74, G = 18) OR [95% CR1 t-CI] (p)	Model 3: Exact-Chronology Continuous Age (n = 63, G = 18) OR [95% CR1 t-CI] (p)
Administrative Court Track (TUN vs PDT)	5.50* [1.12, 27.03] (0.0374)	4.90† [0.92, 26.03] (0.0607)	2.96 [0.75, 11.68] (0.1142)
Civil-Title Entanglement (B4)	5.22** [1.89, 14.41] (0.0032)	—	—
Post-SEMA 2/2019 Era (2019–2025)	0.98 [0.28, 3.48] (0.9751)	—	—
Appellate / Supreme Court Tier	0.48 [0.11, 2.02] (0.2962)	—	—
Mature Certificate Window (≥ 5 Years)	4.30 [0.60, 30.83] (0.1364)	3.52 [0.22, 56.40] (0.3525)	—
Contested Certificate Age (Per 10 Years)	—	—	1.11 [0.76, 1.61] (0.5760)
Good-Faith Derivative Buyer (AJB)	—	0.31* [0.10, 0.94] (0.0403)	—
Holder Actual Physical Possession (Bezit)	—	0.02*** [0.01, 0.06] (< 0.0001)	—
Complete Art. 32(2) Triad (≥5yr + Buyer + Bezit)	—	—	0.18* [0.05, 0.64] (0.0111)
High BPN Cadastral Defect (≥ 2 of B1–B3)	—	1.22 [0.10, 14.51] (0.8683)	2.69 [0.15, 49.36] (0.4837)
Double-Certificate Collision (Sertipikat Ganda)	—	1.84† [0.99, 3.41] (0.0520)	1.85 [0.59, 5.84] (0.2735)
Intercept ($\exp(\hat{\beta}_0)$)	0.006*** (0.0005)	10.11 (0.1020)	0.70 (0.7701)
Penalized Log-Likelihood / LR χ^2 (p-value)	−23.94 / 11.25* (0.0467)	−17.81 / 49.94*** (4.84×10^{-9})	−23.76 / 25.30*** (0.0001)
Nagelkerke R^2 / Tjur's D / ROC-AUC / Max VIF	0.248 / 0.149 / 0.783 / 1.29	0.716 / 0.560 / 0.942 / 1.47	0.483 / 0.305 / 0.857 / 1.43

Note. Penalized odds ratios (OR) estimated via Firth Jeffreys-prior logistic regression; 95% confidence intervals and two-sided p-values reflect Cameron–Gelbach–Miller (CR1) small-sample court-clustered sandwich variance evaluated against the finite-cluster Student-t_{17} distribution (G = 18 judicial circuits). Asymmetric 95% Penalized Profile-Likelihood (PPL) intervals (Heinze and Schemper[29]) support separation-robust

associations for physical *bezit* (PPL CI [0.0001, 0.153], $p_{PLR} < 0.0001$), the Complete Triad in Model 3 (PPL CI [0.043, 0.664], $p_{PLR} = 0.0103$), and TUN gatekeeping in Model 1 (PPL CI [1.34, 26.10], $p_{PLR} = 0.0178$). † p < 0.10, * p < 0.05, ** p < 0.01, *** p < 0.001.

The multivariable Firth estimates in Table 7 summarize three findings (Figures 2A–2B & 3A–3B):

1. Stage-1 Competence Gatekeeping (Model 1, AUC = 0.783, max VIF = 1.29): Tier, era, and certificate maturity are controlled. Filing in the State Administrative Court track (TUN) still raises the odds of preliminary NO dismissal 5.50-fold (95% CR1 t-CI [1.12, 27.03], p = 0.0374; $p_{PLR} = 0.0178$), and civil-ownership entanglement (B4) raises them 5.22-fold (95% CR1 t-CI [1.89, 14.41], p = 0.0032). The estimates are clear. The estimates are consistent with the competence friction that SEMA No. 7/2012, SEMA No. 4/2014, and SEMA No. 10/2020 address, but the intervals are wide (Model 1 rests on 10 NO dismissals and five predictors).

2. Stage-2 Dominance of Physical Bezit and Derivative Purchase Over Elapsed Time (Model 2, LR $\chi^2 = 49.94$, p = 4.84×10^{-9}, AUC = 0.942, Tjur's D = 0.560, max VIF = 1.47): All covariates are held constant at once. Certificate maturity (≥ 5 years) then shows no detectable association with invalidation (OR = 3.52, 95% CR1 t-CI [0.22, 56.40], p = 0.3525; $p_{PLR} = 0.3146$). The bivariate odds ratio pointed the other way (0.443; Table 6), so the adjusted coefficient is unstable and very imprecise. Model 3 covers n = 63 exact-chronology cases decided on the substance. There, each additional decade of certificate age (+10 years) is not associated with invalidation (OR = 1.11, 95% CR1 t-CI [0.76, 1.61], p = 0.5760). Title survival is associated instead with actual physical mastery (*bezit*, OR = 0.02, 95% CR1 t-CI [0.01, 0.06], 95% PPL CI [0.0001, 0.15], p < 0.0001) and with derivative PPAT acquisition (OR = 0.31, 95% CR1 t-CI [0.10, 0.94], p = 0.0403). Because every holder without possession lost (40/40), the *bezit* odds ratio is a penalized estimate under quasi-complete separation, and its size should not be read as precise. Model 3 points the same way. The Complete Article 32(2) Triad is associated with 82% lower odds of invalidation (OR = 0.18, 95% CR1 t-CI [0.05, 0.64], 95% PPL CI [0.04, 0.66], p = 0.0111; $p_{PLR} = 0.0103$). Two further variables show borderline positive associations with invalidation on the substance under conservative finite-cluster t_{17} degrees of freedom. One is true double-certificate collisions (OR = 1.84, p = 0.0520; normal-z p = 0.0367). The other is administrative-track adjudication (OR = 4.90, p = 0.0607; normal-z p = 0.0445). Both may reflect strict AUPB scrutiny in PTUN. They may also reflect endogenous litigant sorting, because Stage-1 filters out ambiguous civil disputes. Neither mechanism was measured.

3. Shield-by-Defect Interaction Matrix & Kaplan–Meier Survival Divergence (Figure 2B & Figure 3A): Figure 2B shows a stark empirical gradient. Sporadic absentee registrants (Buyer = 0, Bezit = 0) suffer 100.0% invalidation (4/4 under low defect; 31/31 under high BPN defect). Holders with only a partial shield (Buyer or Bezit alone) survive under low BPN defect (0.0% invalidated, 0/2; a cell of two cases), yet they collapse to 81.2% (13/16) once ≥ 2 cadastral defects (B1–B3) are proven. Only holders who unite derivative PPAT purchase with physical *bezit* withstand allegations of high BPN defect (20.0% invalidated, 3/15). The Kaplan–Meier curves in Figure 3A show the same divergence. The Incomplete-Triad curve (maroon, n = 47) plunges below 50% survival by age 10 years. It stays under 32% past 20 years. The Complete-Triad curve (teal, n = 16 exact-age) remains at 100% through age 10, which partly reflects the definition of the triad (every member is at least 5 years old, so none can fail earlier) and at 66.1% past age 20–40 years (Mantel–Haenszel log-rank with delayed entry at age 5 for the triad group: $\chi^2 = 4.98$, p = 0.0257; O = 5.00 observed versus E = 10.76 expected invalidations; without delayed entry $\chi^2 = 10.08$, p = 0.0015).

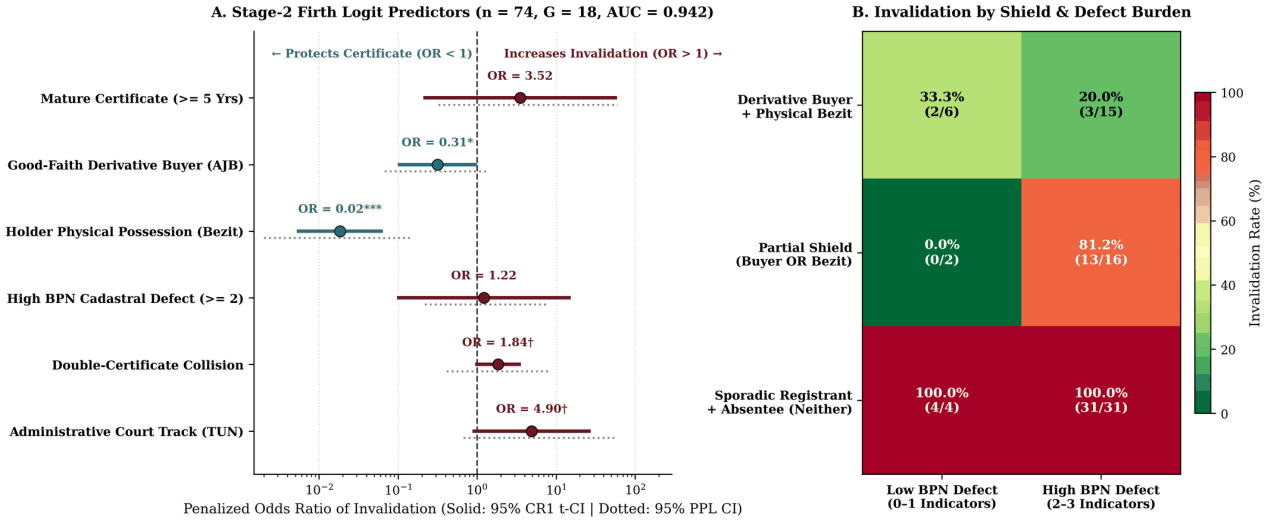

Figure 2. Panel A: Forest plot of Stage-2 Firth penalized odds ratios (Model 2, n = 74, G = 18 judicial circuits, ROC-AUC = 0.942) displaying both 95% CR1 Student-t_{17} confidence intervals (solid bars) and asymmetric 95% Penalized Profile-Likelihood (PPL) confidence intervals (dotted bars) on a logarithmic scale; the lower profile bound for Bezit (0.0001) lies beyond the left axis limit. Panel B: Empirical merits invalidation matrix (n = 74) cross-tabulating holder shield configuration against BPN cadastral defect burden (0–1 versus 2–3 indicators among B1–B3).

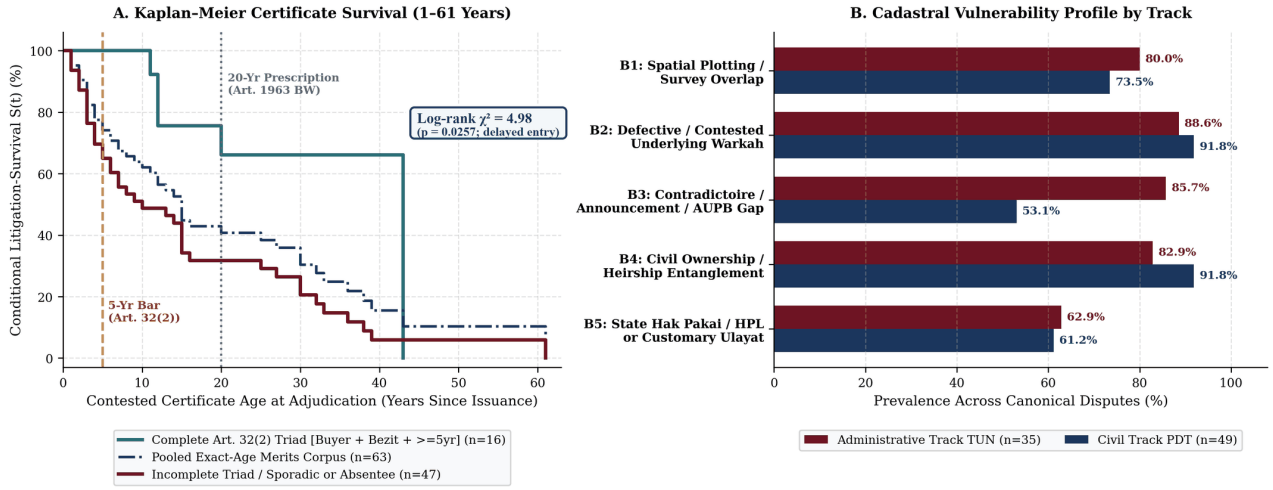

Figure 3. Panel A: Non-parametric Kaplan–Meier certificate survival curves $\hat{S}(t)$ across 1–61 years since registration (n = 63 exact-chronology merits cases), contrasting Complete Article 32(2) Triad holders against Incomplete-Triad holders relative to the 5-year (Art. 32(2) PP 24/1997) and 20-year (Art. 1963 Civil Code) benchmarks. Every complete-triad certificate is at least 5 years old, so that curve cannot fall before age 5. The log-rank statistic shown uses delayed entry at age 5 for the triad group. Panel B: Prevalence of administrative and cadastral vulnerability indicators (B1–B5) across State Administrative (TUN, n = 35) and Civil (PDT, n = 49) judicial tracks.

3.4 Robustness checks, Manski chronology bounds, and selection sensitivity

Table 8 summarizes ten diagnostic and sensitivity checks (S1–S10). They test whether the substantive conclusions hold up against outlier judicial circuits, post-2019 regulatory reforms, unstated issuance years, two-stage gatekeeping selection, archival source genre, and the choice of variance estimator. The jackknife (S1) drops each of the 18 circuits in turn, and S2 restricts the data to the modern 2019–2025 sub-sample under SEMA 2/2019 and PP 18/2021 (n = 52). In all of these runs physical *bezit* (OR = 0.013–0.031) and derivative PPAT purchase (OR = 0.229–0.432) stay protective, whereas ≥ 5-year maturity never turns protective (OR = 0.929–11.380). Coding mature_5yr_window = 1 on the 11 unstated-chronology merits dockets could raise a concern. S3 therefore re-estimates the disaggregated Model 2 strictly on the n = 63 zero-imputation exact-chronology sample (Bezit OR = 0.023, p = 0.0002; ≥ 5yr OR = 2.825, p = 0.4284). S4 computes extreme Manski worst-case bounds[36] by forcing all 11 unstated cases either below 5 years (0) or to 5 years and above (1). Under both extremes the five-year contrast remains null (Fisher p = 0.4262 and 0.3637; Model 2 ≥ 5yr OR = 1.912, p = 0.4445), while Bezit (OR = 0.017) and Buyer (OR = 0.329) hold. S5 estimates an unconditional model on all N = 84 disputes (DV = unconditional_cert_invalidated). It indicates that Stage-1 NO selection does not drive the merits shields (Buyer OR = 0.380, p = 0.0327; Bezit OR = 0.126, p = 0.0002). S6 adds archival source genre (OJS case dossier vs official MA dispatch) and log document length. Bezit (OR = 0.013) stays intact, and source_ojs is not significant (OR = 1.288, p = 0.5664). Finally, King–Zeng case-selection prior calibrations[33] (S7–S8) give a 98.52% predicted invalidation risk for an unshielded *sporadic*/absentee holder versus 3.38% for a Complete-Triad holder, even under a conservative population invalidation prior of τ = 0.30. At τ = 0.60 the values are 99.57% and 10.91%.

Table 8. Comprehensive econometric robustness, Manski chronology-bound, source-genre, and selection sensitivity battery (S1–S10).

Specification / diagnostic check	Sample (n)	Key empirical estimate / stability bound	Substantive robustness conclusion
S1: Leave-One-Circuit-Out Jackknife (18 runs, Model 2)	54–73	Buyer OR ∈ [0.229, 0.432]; Bezit OR ∈ [0.013, 0.031]; ≥5yr OR ∈ [0.929, 11.380]	No single circuit reverses the direction of an estimate; removing MA_PDT or PTUN_MDN preserves all signs
S2: Modern Post-SEMA 2/2019 & Electronic Era (2019–2025)	52	Buyer OR = 0.343 (p = 0.0376); Bezit OR = 0.030 (p < 0.0001); ≥5yr OR = 1.917	The associations persist in the period after Perma 6/2018, SEMA 2/2019, and PP 18/2021
S3: Disaggregated Model 2 on Exact-Chronology Sample (n = 63)	63	Bezit OR = 0.023 (p = 0.0002); ≥5yr OR = 2.825 (p = 0.4284); Age (+10y) OR = 1.107	Dropping all 11 unstated-year cases leaves the ≥ 5yr estimate non-significant and the *bezit* association strong
S4: Manski Worst-Case Bounds (11 Unstated Set to 0 vs 1)	74	All-0 Biv. p = 0.4262 (≥5yr OR = 1.912, Bezit OR = 0.017); All-1 Biv. p = 0.3637	The five-year contrast remains non-significant even under extreme assignments of the missing dates
S5: Unconditional Full-Corpus Firth Logit (DV = Uncond. Inv.)	84	Buyer OR = 0.380 (p = 0.0327); Bezit OR = 0.126 (p = 0.0002); AUC = 0.844	Protective shields hold unconditionally without conditioning on Stage-1 NO survival
S6: Archival Source-Genre (OJS vs MA) & log10(Chars) Control	74	OJS 73.33% vs MA 64.29% (p = 0.5218); OJS OR = 1.288 (p = 0.5664); Bezit OR = 0.013	No detectable difference between scholarly case dossiers and judicial-portal sources
S7: King–Zeng Prior Correction (Low Population Prior τ = 0.30)	74	$\hat{\beta}_0^*$ = 0.5403; Pred(Unshielded) = 98.52% vs Pred(Triad) = 3.38%	95.1-percentage-point risk gap survives extreme publication-bias discounting
S8: King–Zeng Prior Correction (Moderate Prior τ = 0.45)	74	$\hat{\beta}_0^*$ = 1.1869; Pred(Unshielded) = 99.22% vs Pred(Triad) = 6.26%	Robust substantive separation under balanced Priest–Klein litigation priors
S8b: King–Zeng Prior Correction (High Population Prior τ = 0.60)	74	$\hat{\beta}_0^*$ = 1.7931; Pred(Unshielded) = 99.57% vs Pred(Triad) = 10.91%	88.7-percentage-point risk gap; the triad prediction rises with the assumed prior (added from the authors' analysis output)
S9: Missing-Chronology Orthogonality & VIF Collinearity Audit	63–84	Exact 71.43% vs Unstated 72.73% (p = 1.0000); Max VIF = 1.294 / 1.468 / 1.431	Orthogonal missingness and orthogonal regressor matrices (all VIFs < 1.50)

Specification / diagnostic check	Sample (n)	Key empirical estimate / stability bound	Substantive robustness conclusion
S10: Profile Penalized Likelihood (PPL / PLR) & Fisher SE Audit	63–84	Bezit PPL CI [0.0001, 0.153] ($p_{PLR} < 0.0001$); Triad PPL CI [0.043, 0.664] ($p_{PLR} = 0.0103$)	Core *bezit*, Complete-Triad, and TUN gatekeeping effects hold under exact PLR & Fisher SEs

4. Discussion

4.1 Four-canon doctrinal analysis

Our jurimetric findings raise a doctrinal puzzle. An explicit five-year statutory bar was enacted to quiet mature Indonesian land titles (Article 32(2) of PP No. 24 of 1997, retained under Article 102(b) of PP No. 18 of 2021), yet this corpus shows no clear drop in invalidation at year five (67.39% invalidation after ≥ 5 years and 60.00% after ≥ 20 years). Why? The four classical canons of continental legal hermeneutics (grammatical, systematic, teleological, and historical interpretation) explain the doctrinal mechanics that drive judicial invalidation:

1. Grammatical Interpretation (*Interpretasi Gramatikal*) — The Self-Cancelling "Validly Issued" Predicate and Its Interaction with Article 64 of PP No. 18 of 2021:

Textually, the opening clause of Article 32(2) of PP No. 24 of 1997 conditions the five-year bar on four conjunctive predicates: "*Dalam hal atas suatu bidang tanah sudah diterbitkan sertipikat secara sah atas nama orang atau badan hukum yang memperoleh tanah tersebut dengan itikad baik dan secara nyata menguasainya*..." [Where over a land parcel a certificate has been validly issued in the name of a person or legal entity who acquired the land in good faith and actually possesses it...]. Grammatically, PTUN and Supreme Court chambers read "*diterbitkan secara sah*" (validly issued) as a threshold condition precedent. They do not treat it as the legal consequence of five years' repose. In these dossiers, litigation often revealed that ATR/BPN failed to plot an existing 1978 or 1986 *Surat Ukur* onto its registration map (B1 = 76.19%), accepted an unverified *girik* or forged release (B2 = 90.48%), or skipped *contradictoire delimitatie* neighbor sign-off (B3 = 66.67%, e.g., 77 PK/TUN/2015). Judges then conclude that the certificate was not "validly issued". The five-year clock becomes inoperable, even 30 or 40 years later. A comparison with PP No. 18 of 2021 is instructive. Article 102(b) of that regulation keeps PP No. 24 of 1997 in force so far as the two do not conflict, so Article 32(2) and its "validly issued" predicate remain operative. Article 64 of PP No. 18 of 2021 adds a related five-year rule: the Land Office may cancel a certificate for administrative defect only within five years of issuance, and later cancellation must go through the courts (Article 64(2)). Article 64 contains no wording on actual possession or on written objection. It therefore leaves the possession requirement to Article 32(2) and does not restate it for the electronic-registration regime.

2. Systematic Interpretation (*Interpretasi Sistematis*) — Normative Hierarchy, Article 55 Teori Pengetahuan, and Prior in Tempore:

Systematically, Article 32(2) sits inside a Government Regulation (PP), which is subordinate under Article 7(1) of Law No. 12 of 2011 to primary statutes (Undang-Undang). In the TUN track (89.29% invalidation on the substance), two statutory doctrines can neutralize the five-year bar at the same time. First, consider third parties not directly addressed by an administrative decree (*pihak ketiga yang tidak dituju langsung oleh KTUN*). Article 55 of Law No. 5/1986, as interpreted through the discovery rule (*teori pengetahuan / sejak merasa kepentingannya dirugikan*) in SEMA No. 3/2015, SEMA No. 5/2021, and Article 5(2) of Perma No. 6/2018, starts the 90-day filing clock only when the rival claimant discovers the overlapping certificate (e.g., during a 2023 re-survey of a 1993 or 1999 title in 24/G/2023/PTUN.BL and 164/G/2024/PTUN.BDG). A late discovery can displace both the 90-day statutory bar and the 5-year regulatory bar. Second, once inside substantive review, PTUN judges apply *lex superior derogat legi inferiori* under Article 53(2) of Law No. 5/1986 and Articles 10, 52, and 66 of Law No. 30/2014. A subordinate PP time-bar cannot cure AUPB carefulness breaches (*asas kecermatan*), they hold. The PDT track works differently. Supreme Court Jurisprudence No. 5/Yur/Pdt/2018 (976 K/Pdt/2015, 307 K/Pdt/2008, 1537 K/Pdt/2018, 25/Pdt.G/2023/PN.Pal) enforces a strict *prior in tempore, potior in jure* rule. When two genuine BPN certificates collide (dual_bpn_cert_collision, OR = 1.84), the later-issued certificate is voided *ipso jure*, even if it has been held in good faith for decades (392 K/TUN/2022).

3. Teleological Interpretation (*Interpretasi Teleologis*) — Shifting Cadastral Fault Without an Assurance Safety Net:

Teleologically, Article 19 of UUPA aims to deliver agrarian legal certainty. SEMA No. 4 of 2016 seeks to protect commerce by shielding buyers who purchase by auction, before a PPAT or by adat sale, after investigating the status of the land and obtaining BPN information (Model 2 Buyer OR = 0.31; Bezit OR = 0.02). The difficulty arises when two innocent parties collide: an original 1981 SHM owner who never sold her land, and a 2010 PPAT buyer who relied on a clean BPN check. Indonesian courts then face a zero-sum choice, because Indonesia has no State Land Assurance Fund. The remedy is also weak. Supreme Court Regulation (Perma) No. 2 of 2019 transferred governmental tort actions (*onrechtmatige overheidsdaad*, OOD) against ATR/BPN from the Civil Courts (*Pasal 1365 BW*) to the State Administrative Courts (PTUN). Since then, statutory administrative compensation in PTUN has remained governed by archaic Government Regulation (PP) No. 43 of 1991, which caps recoverable damages at Rp 5,000,000 (approximately USD 315, at about Rp 15,900 per USD, the rate implied by the authors' figure). With 100% of the loss to assign and no functional state indemnity channel, Indonesian judges preserve static priority (*prior in tempore*) whenever double certificates collide. The displaced good-faith registrant is left uncompensated.

4. Historical Interpretation (*Interpretasi Historis*) — Customary Bezit Roots versus Paper Speculation:

Historically, the Elucidation to Article 32(2) of PP No. 24 of 1997 explicitly anchors Indonesia's five-year bar in customary adat law's doctrine of *rechtsverwerking*, under which land rights in traditional Indonesian agrarian communities drew their vitality from visible social cultivation and stewardship[6,18]. Such rights faded. The trigger was an owner abandoning land for years while another person visibly worked it. Our econometric finding is that actual physical possession (OR = 0.02, $p < 0.0001$; 100.0% invalidation when Bezit = 0) outweighs calendar age. That finding is consistent with the view that Indonesian judges still adjudicate Article 32(2) through its historical adat lens, although the study did not measure judicial reasoning directly. Paper registration divorced from physical *bezit* (1012 K/Pdt/2023, 810/Pdt.G/2014/PN.Sby) is treated as speculative formalism unworthy of *rechtsverwerking* protection, whereas continuous physical stewardship (336 PK/Pdt/2015, 109 PK/Pdt/2022 Dago Elos, 4655 K/Pdt/2023, 07/G/2025/PTUN.MDN) anchors judicial protection.

4.2 Comparative functional equivalence and transplantability

Indonesia's electronic registration era (PP No. 18 of 2021) calls for doctrinally sound reforms, and to design them we apply functional-equivalence comparative methodology[37,38]. The method rests on a precise *tertium comparationis*. It asks how legal systems allocate the risk of historical cadastral or

root-of-title error among (i) a displaced prior right-holder, (ii) a good-faith registered transferee, and (iii) the state land registry. Figure 4 and Table 9 contrast Indonesia with two common-law Torrens jurisdictions (Australia and Singapore). Two continental Civil-Law jurisdictions complete the set. They are Germany and the Netherlands, the latter being Indonesia's direct codification parent[39–45].

1. Australia (*Real Property Act* 1900 [NSW] s. 42(1)(a) & Part 14) — The Prior Folio Exception Rescued by State Assurance:

Under the Australian Torrens system, registration confers immediate indefeasibility. It operates against prior unregistered claims and historical survey errors[39–41]. A comparative point emerges from Section 42(1)(a) of the *Real Property Act* 1900 (NSW), under which immediate Torrens indefeasibility yields to the estate or interest of a proprietor who claims the same land by reason of an entry in a prior folio of the Register. When two genuine certificates overlap spatially, Australian courts therefore reach the exact same in rem priority outcome as Indonesia's Supreme Court Jurisprudence No. 5/Yur/Pdt/2018 (*prior in tempore*). The earlier folio keeps the land. Why does Australia maintain firm title confidence while Indonesia suffers crisis? The answer lies in Part 14 of the NSW Act, which pairs the prior folio rule with a dedicated Torrens Assurance Fund. The defeated good-faith second folio-holder receives monetary compensation from the state fund under the conditions and exceptions of s 129, whereas Indonesia's 26.32% (5/19) defeated Complete-Triad holders are stripped of title with zero indemnity[4,40].

2. Singapore (Land Titles Act 1993, s. 46(2)(a) & s. 151) — Coordinated Digital Polygon Locking Plus Assurance Indemnity:

Singapore moved from colonial deeds to a unified digital register (STARS eLodgment), and it similarly gives paramountcy to the registered proprietor, subject to the fraud and forgery exception in Section 46(2)(a), and provides compensation for persons deprived of land through the Assurance Fund (ss. 151 and 155) managed by the Singapore Land Authority (SLA)[42]. The point matters for Indonesia's PP No. 18 of 2021 rollout. Singapore also relies on a Coordinated Cadastre, which ties survey and title records to one reference framework and reduces the scope for overlapping folios.

3. Germany (*Bürgerliches Gesetzbuch* BGB §§ 891–892 & § 900) — Öffentlicher Glaube Without Abandoning Civil-Law Structure:

Unlike common-law Torrens states, Germany shares Indonesia's continental Roman–Germanic distinction between obligatory contract and real conveyance (*Abstraktionsprinzip*). BGB § 892 gives the *Grundbuch* (maintained by specialized judicial registrars, *Rechtspfleger*, at the local court) positive public faith (*öffentlicher Glaube des Grundbuchs*). A third party acquiring a right via legal transaction (*Rechtsgeschäft*) therefore acquires valid ownership, even if the registered seller was not the true owner due to a historical defect. Two exceptions apply. The first is a contradiction (*Widerspruch*) entered in the register. The second is the buyer's actual knowledge of the inaccuracy[39,43]. BGB § 900 (*Tabularersitzung*) also grants absolute statutory ownership to anyone registered in the *Grundbuch* who possesses the land (*Eigenbesitz*) for thirty years. Courts cannot reopen initial administrative issuance procedures in that case.

4. The Netherlands (*Burgerlijk Wetboek* BW Arts. 3: 24–3:26, Art. 3:88 & *Kadasterwet* Art. 117) — Indonesia's Direct Civil-Law Parent Modernized:

Indonesia's *KUHPerdata* (1848) inherited the 1838 Dutch *oud Burgerlijk Wetboek*'s purely negative deeds system (*nemo plus iuris* without third-party register protection). The Netherlands' 1992 recodification into a quasi-positive system therefore offers the highest institutional transplantability for Indonesia[44]. Modern Dutch law rests on three pillars. BW Articles 3:24–3:26 protect acquirers who relied on the public registers, against unregistered facts and against inaccurate registry entries, subject to the conditions stated in each article. BW Article 3:88 validates a transfer despite the transferor's lack of power of disposal (*beschikkingsonbevoegdheid*) when that lack results from the invalidity of an earlier transfer and the acquirer acted in good faith. It operates alongside the Latin-notary (*notaris*) duty to investigate the public registers before executing a deed (*onderzoeksplicht*), which is stricter in practice than the deed witnessing performed by the Indonesian PPAT. Finally, Article 117 of the *Kadasterwet* makes the *Kadaster* liable for damage caused by mistakes, omissions, delays and irregularities in keeping the public registers.

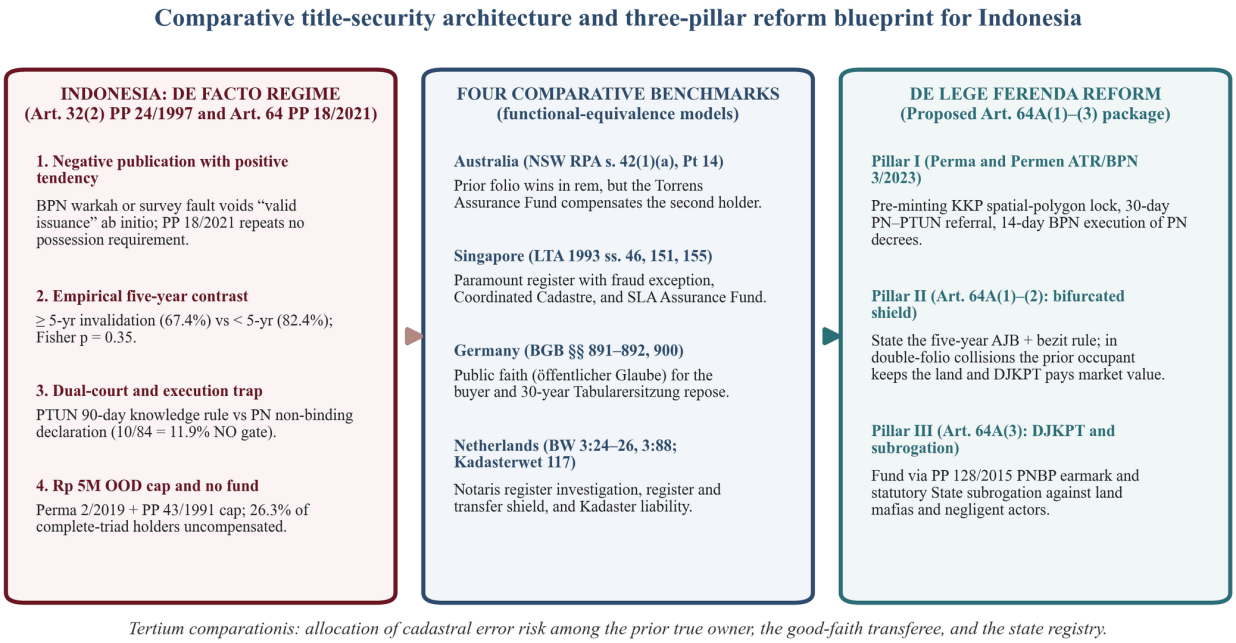

Figure 4. Comparative institutional architecture contrasting Indonesia's de facto negative-publication and dual-jurisdiction pathology (N = 84 empirical findings) with functional-equivalence benchmarks in Australia, Singapore, Germany, and the Netherlands, mapped onto a three-horizon *de lege ferenda* statutory reform package.

Table 9. Comparative functional-equivalence matrix and sequenced *de lege ferenda* reform roadmap for Indonesian land registration.

Jurisdiction / Reform Pillar	Publication & third-party shield rule	Cadastral error risk & indemnity mechanism	Forum architecture	Operational lesson / concrete Indonesian drafting target
Indonesia (De Facto Baseline)	Negative w/ positive tendency (Art. 32(2) PP 24/1997); 67.4% ≥5yr & 60.0% ≥20yr invalidated (p = 0.3502)	No assurance fund; BPN *warkah*/plotting fault voids title; Perma 2/2019 PTUN OOD damages capped at Rp 5M (PP 43/1991)	Bifurcated PTUN (20.0% NO; batal) vs PN (6.1% NO; non-binding)	Eliminate self-cancelling "validly issued" trap; unify competence & establish state indemnity fund
Australia (NSW RPA s. 42(1)(a) & Pt 14)	Immediate indefeasibility (s. 42); prior folio wins in rem (s. 42(1)(a))	Torrens Assurance Fund (Part 14) compensates a person who suffers loss in the circumstances of s. 129, subject to its exceptions	Unified Supreme Court / Land & Environment Court	Proves *prior in tempore* works seamlessly once paired with cash Assurance Indemnity
Singapore (LTA 1993 s. 46(2)(a) & s. 151)	Paramount registered estate (s. 46); fraud and forgery exception (s. 46(2)(a))	Land Titles Assurance Fund (ss. 151, 155); Coordinated Cadastre (survey and title records aligned)	Unified High Court jurisdiction	Enforce mandatory One-Map Polygon Topology Lock in KKP before minting *Sertipikat Elektronik*
Germany (BGB §§ 892, 900)	Positive public faith (*öffentlicher Glaube*) for derivative acquirers + 30-yr *Tabularersitzung*	Judicial registrar (*Rechtspfleger*) ex ante audit + state official liability (GG Art. 34)	Unified civil *Grundbuch*amt & civil courts	Separate derivative PPAT transferee protection from first-time *sporadic* registrant scrutiny
Netherlands (BW 3:24–26, 3:88 & Art. 117)	Register-reliance (3:24–26) & prior-defect shield (3:88) + *notaris* root audit	*Kadaster* liability (*Kadasterwet* Art. 117) for mistakes, omissions and irregularities in keeping the public registers	Unified Civil Chamber (Rechtbank) with administrative coordination	Direct civil-law template for Bifurcated Indonesian Indefeasibility without abolishing BW conveyance
Pillar I (Short-Term, 0–12 Mos): Perma & Permen ATR/BPN 3/2023 & 21/2020	Mandatory pre-minting Spatial Polygon Lock (blocking >0.5% overlap in KKP Geo-Database)	Automatic electronic *blokir*/catatan sengketa sync between e-Court MA and BPN Buku Tanah Elektronik	30-Day Prejudicial Referral & One-Step Execution: Civil non-binding decree triggers mandatory 14-day BPN cancellation (amending Arts. 29–35 Permen 21/2020)	Intended to reduce the 20.0% PTUN NO dismissals and the post-civil-judgment administrative step (a projected effect, not estimated in this study)
Pillar II (Medium-Term, 1–2 Yrs): Amendment of Art. 64 PP 18/2021 / New Art. 64A	Bifurcated Five-Year Bar: State the possession requirement explicitly; absolute 5-yr repose for AJB + *bezit* buyers	Where BPN spatial error caused a double-certificate collision, earlier occupant keeps land; displaced good-faith buyer receives mandatory State Indemnity	Unified Agrarian Special Chamber (*Kamar* Khusus Pertanahan) or joint PN–PTUN competence protocol	Draft Proposed Art. 64A(1)–(2) stating the possession requirement explicitly and curing the Rp 5M cap of PP 43/1991

Jurisdiction / Reform Pillar	Publication & third-party shield rule	Cadastral error risk & indemnity mechanism	Forum architecture	Operational lesson / concrete Indonesian drafting target
Pillar III (Structural, 2–4 Yrs): National Land Law (RUU Pertanahan)	Statutory transition from negative-tendency to Guaranteed Derivative Registration (Publikasi Terjamin Bersyarat)	Establish *Dana Jaminan Kepastian Pendaftaran Tanah* (DJKPT) (PP 128/2015 PNBP earmark) + Statutory State Subrogation (Art. 64A(3))	Single-window judicial review of title, DJKPT indemnity award, & subrogation recovery	Aligns *Sertipikat Elektronik* with Art. 28H(4) UUD 1945 while deterring *mafia tanah* moral hazard

Constitutional and Institutional Transplantability Filter for Indonesia: Transplanting Australian immediate indefeasibility wholesale into Indonesia today could, in the authors' assessment, legitimize land-mafia and *sporadic*-registration grabs over indigenous and prior owners[6,12]. The risk persists until ATR/BPN completes spatial validation of legacy analog *Surat Ukur* maps (B1 = 76.19%). The same holds for customary *ulayat*/pusaka boundaries (B5 = 61.90%, protected under Article 18B(2) of UUD NRI 1945). The Dutch–German–Singaporean synthesis offers the alternative: ex ante spatial-polygon topology locking, bifurcated third-party AJB, *bezit* indefeasibility modeled on BW Art. 3:88, and a PNBP-financed State Cadastral Assurance Fund modeled on *Kadasterwet* Art. 117 and Singapore's s. 151. It fits Indonesia's civil-law architecture. It respects Article 18B(2) customary rights. It also resolves the PTUN–PN two-court trap without, in the authors' view, requiring constitutional amendment.

4.3 De lege ferenda: a sequenced three-horizon reform roadmap

Table 9 turns the jurimetric and comparative findings into a three-horizon legislative and judicial reform package. The Supreme Court, ATR/BPN, the Ministry of Finance, and the legislature (DPR RI) can act on it directly.

Legislative drafters need Pillars II and III in operational form, and the design must also prevent moral hazard or *mafia tanah* collusion. We therefore propose replacing Article 32(2) of PP No. 24/1997, and amending Article 64 of PP No. 18/2021 to match, with a three-clause Bifurcated Indefeasibility, Indemnity, and Subrogation Rule (Proposed Article 64A):

1. Clause (1) [Derivative Good-Faith & Physical Bezit Repose]: Where a registered land right has been transferred by authentic PPAT deed or statutory auction, the third-party acquirer must have acted in good faith and verified the electronic register. The acquirer must also have maintained continuous actual physical possession (*penguasaan fisik nyata*) for five (5) years since registration without registered judicial *blokir*. In that case, internal administrative or survey negligence by the Land Office (*cacat administrasi penerbitan awal*) shall not be grounds to annul or declare non-binding the transferee's certificate. Two exceptions apply. The first is proof of the transferee's actual fraud (*penipuan aktif*). The second is encroachment upon gazetted customary *ulayat* land.

2. Clause (2) [Double-Certificate Collision & No-Fault Indemnity]: Where two genuine certificates issued by the Land Office overlap spatially (*sertipikat ganda*), the court shall award in rem title to the party holding earlier registration coupled with actual physical stewardship, and shall also order the State Land Registration Assurance Fund (DJKPT) to pay full fair-market indemnity within ninety (90) days. The indemnity goes to any displaced good-faith certificate holder who neither forged documents nor colluded in maladministration. It supersedes the Rp 5,000,000 administrative-compensation ceiling of PP No. 43 of 1991. Fiscal design follows PP No. 128 of 2015. That regulation on ATR/BPN Non-Tax State Revenue (PNBP) sets the fee for registering a transfer of rights (*balik nama*) at 1‰ of the land value plus a fixed Rp 50,000, as originally enacted. Ring-fencing 15%–25% of existing PNBP transfer receipts, or levying a dedicated 0.05%–0.25% assurance surcharge, could capitalize DJKPT without drawing on the general state budget (APBN). No revenue projection is provided, so sufficiency is not shown.

3. Clause (3) [Statutory State Subrogation & Anti-Collusion Clawback]: Upon disbursing indemnity under Clause (2), the DJKPT Fund is subrogated by operation of law (*subrogasi demi hukum*) to all civil, criminal-restitution, and state-treasury recovery claims (*Tuntutan Ganti Kerugian Negara* under Law No. 1 of 2004). The claims lie against any seller, applicant, licensed surveyor, PPAT, or Land Office official. The trigger is forgery, misrepresentation, or gross negligence that caused the overlapping registration.

4.4 Limitations and future research

Four limitations call for transparent epistemic candor. First, the website putusan3.mahkamahagung.go.id enforces automated firewall restrictions against programmatic bulk downloading. Our N = 84 canonical corpus therefore combines 14 official Supreme Court BSDK/Badilum judicial dispatches with 70 open-access peer-reviewed OJS case-law dossiers transcribing docketed decisions. The source-genre sensitivity check (Table 8, S6, Fisher p = 0.5218; controlled OJS OR = 1.288, p = 0.5664), the unconditional N = 84 selection check (S5), and the King–Zeng prior-correction battery[33] (S7–S8, $\tau \in \{0.30, 0.45, 0.60\}$) do not indicate that dossier source type, Stage-1 forum sorting, or publication-selection priors drive our core findings, although these checks cannot rule out selection into the dossiers themselves. Future institutional partnerships with the Supreme Court Registrar (Kepaniteraan MA) could still extend survival estimation to unappealed SIPP trial dockets. Second, 13 of 84 dossiers (15.48%) did not state the exact calendar issuance year of the contested certificate. We refused all synthetic imputation and found no association between missingness and invalidation (Fisher p = 1.0000). The main estimates were stable under both exact-chronology restriction (S3, n = 63) and adversarial Manski bounds[36] (S4). Third, our corpus captures the early transition phase of PP No. 18 of 2021 and Permen ATR/BPN No. 3 of 2023. Longitudinal evaluation of native *Sertipikat Elektronik* disputes minted post-2024 will become feasible after 2029. Fourth, merging cadastral GIS polygon data from ATR/BPN's *Bhumi* portal with judicial outcomes represents a promising frontier for spatial jurimetrics. Further limits apply. The corpus is purposive and mostly secondary, so rates describe the corpus and not all Indonesian land litigation. Model 1 rests on 10 NO dismissals for five predictors, and the intervals for the track and possession estimates are wide. The reliability audit compares one coder with a keyword rule. The Kaplan–Meier comparison needs delayed entry for the triad group (Section 2.4).

5. Conclusion

The study covers eighty-four non-duplicate Indonesian judgments concerning overlapping and competing land certificates (2008–2025). In this corpus, the five-year shield does not operate as a time-based bar. Article 32(2) of Government Regulation No. 24 of 1997, together with the related five-year rule in Article 64 of Government Regulation No. 18 of 2021, does not appear to function as a chronological five-year indefeasibility shield in this corpus, because crossing the statutory bar was not accompanied by a statistically significant reduction in invalidation on the substance (67.39% for certificates aged ≥ 5 years versus 82.35% for < 5 years; Fisher p = 0.3502). Even ultra-mature certificates aged 20 to 61 years are annulled or declared legally non-binding in 60.00% of cases. Multivariable Firth penalized logistic models (ROC-AUC = 0.942), run with profile-likelihood and finite-cluster CR1 inference, are consistent with courts treating ATR/BPN survey and *warkah*

negligence, when combined with Article 55 discovery-rule challenges, as negating "valid issuance" *ab initio*. Survival then shifts onto continuous actual physical mastery (OR = 0.02, p < 0.0001) and derivative good-faith PPAT acquisition (OR = 0.31, p = 0.0403; Complete-Triad OR = 0.18, p = 0.0111, log-rank p = 0.0257 with delayed entry). Protection is still incomplete. In double-certificate collisions, 26.32% (5/19) of Complete-Triad holders lose title without compensation (OR = 1.84, p = 0.0520). Friction between the two jurisdictions adds a second gap, since 20.00% of administrative-track suits are dismissed at the Stage-1 competence gate (OR = 5.50, p = 0.0374) while all civil-track invalidations (100%) take the form of a non-binding declaration that needs a further administrative step under Permen ATR/BPN No. 21 of 2020. Digitization does not cure this. Moving land certificates into *Sertipikat Elektronik* without reforming the underlying risk allocation, and without restating a possession requirement in Article 64 of Government Regulation No. 18 of 2021, merely carries analog vulnerability into the electronic register. Indonesia can honor its constitutional promise of just agrarian legal certainty only by pairing pre-issuance spatial-polygon locks and unified PN–PTUN execution with bifurcated derivative indefeasibility and a subrogation-backed, PNBP-financed State Land Registration Assurance Fund (DJKPT).

Declarations

Ethics Approval and Consent

Not applicable. The study analyzed published judicial decisions, official court dispatches, and statutory instruments, which are excluded from copyright protection under Article 42(d) of Law No. 28 of 2014 on Copyright[23], and involved no human participants or private personal data.

Use of Artificial Intelligence

The authors declare that no generative artificial intelligence tools were used in the design, analysis, or writing of this manuscript.

Author Contributions

M.H.: Conceptualization, Methodology, Software, Formal analysis, Investigation, Data curation, Writing – original draft, Visualization. J.T.: Validation, Resources, Writing – review & editing. C.G.: Validation, Supervision, Project administration, Writing – review & editing. All authors have read and approved the final published version of the manuscript.

Funding

None. This research received no external funding from any public, commercial, or not-for-profit agency.

Competing Interests

None. The authors declare no competing interests.

Data Availability Statement

The de-identified dataset and the analysis scripts supporting the findings are available from the corresponding author on reasonable request.

Acknowledgments

None.

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